



CLASS 7th

MATHS

CHAPTER- 1st

Integers

EXERCISE-1.1

NCERT SOLUTION

1. Write down a pair of integers whose:

(a) Sum is -7

Ans.

$$(-2) + (-5) = (-7)$$

(b) Difference is -10

Ans.

$$(-15) - (-5) = -10$$

(c) Sum is 0

Ans.

$$(-7) + (7) = 0$$

2. (a) Write a pair of negative integers whose difference gives 8 .

Ans.

Let the two negative integer be -4 and -12

$$\therefore \text{Difference} = (-4) - (-12) = (-4) + 12 = 8$$

(b) Write a negative integer and a positive integer whose sum is -5 .

Ans.

Let one negative and one positive integer be -9 and 4

$$\therefore \text{Sum} = (-9) + 4 = -5$$

(c) Write a negative integer and a positive integer whose difference is -3 .

Ans.

Let one negative and one positive integer be -2 and -1

$$\therefore \text{Difference} = (-2) - (-1) = -3$$

3. In a quiz, team A scored -40 , 10 , 0 and team B scored 10 , 0 , -40 in three successive rounds. Which team scored more? Can we say that we can add integers in any order?

Ans.

$$\text{Score of team A} = (-40) + 10 + 0 = -30$$

$$\text{Score of team B} = 10 + 0 + (-40) = -30$$

$$\therefore \text{Both the team had same score} = -30$$

4. Fill in the blanks to make the following statements true:

$$(i) (-5) + (-8) = (-8) + (\dots\dots\dots)$$

Ans.

$$(-5) + (-8) = (-8) + (-5)$$

$$(ii) -53 + \dots\dots\dots = -53$$

Ans.

$$-53 + 0 = -53$$

$$(iii) 17 + \dots\dots\dots = 0$$

Ans.

$$17 + (-7) = 0$$

$$(iv) [13 + (-12)] + (\dots\dots\dots) = 13 + [(-12) + (-7)]$$

Ans.

$$[13 + (-12)] + (-7) = 13 + [(-12) + (-7)]$$

$$(v) (-4) + [15 + (-3)] = [-4 + 15] + \dots\dots\dots$$

Ans.

$$(-4) + [15 + (-3)] = [-4 + 15] + (-3)$$

EXERCISE-1.2

NCERT SOLUTION

1. Find each of the following products:

(a) $3 \times (-1)$

Ans.

$$3 \times (-1) = (-3)$$

(b) $(-1) \times 225$

Ans.

$$(-1) \times 225 = 225$$

(c) $(-21) \times (-30)$

Ans.

$$(-21) \times (-30) = 630$$

(d) $(-316) \times (-1)$

Ans.

$$(-316) \times (-1) = 316$$

(e) $(-15) \times 0 \times (-18)$

Ans.

$$(-15) \times 0 \times (-18) = 0$$

(f) $(-12) \times (-11) \times (10)$

Ans.

$$(-12) \times (-11) = 132 \times (10) = 1320$$

(g) $9 \times (-3) \times (-6)$

Ans.

$$9 \times (-3) \times (-6) = 9 \times 18 = 162$$

(h) $(-18) \times (-5) \times (-4)$

Ans.

$$(-18) \times (-5) \times (-4) = 90 \times (-4) = -360$$

(i) $(-1) \times (-2) \times (-3) \times 4$

Ans.

$$(-1) \times (-2) \times (-3) \times 4 = (-6) \times 4 = (-24)$$

(j) $(-3) \times (-6) \times (-2) \times (-1)$

Ans.

$$(-3) \times (-6) \times (-2) \times (-1) = 18 \times 2 = 36$$

2. Verify the following:

(a) $18 \times [7 + (-3)] = [18 \times 7] + [18 \times (-3)]$

Ans.

$$18 \times [7 + (-3)] = [18 \times 7] + [18 \times (-3)]$$

$$18 \times 4 = 126 + (-54)$$

$$72 = 72$$

$$\text{L.H.S} = \text{R.H.S}$$

Hence, verified.

(b) $(-21) \times [(-4) + (-6)] = [(-21) \times (-4)] + [(-21) \times (-6)]$

Ans.

$$(-21) \times [(-4) + (-6)] = [(-21) \times (-4)] + [(-21) \times (-6)]$$

$$(-21) \times (-10) = 84 + 126$$

$$210 = 210$$

$$\text{L.H.S} = \text{R.H.S}$$

Hence, verified.

3. (i) For any integer a , what is $(-1) \times a$ equal to?

Ans.

$(-1) \times a = -a$, where, a is an integer.

(ii) Determine the integer whose product with (-1) is

(a) -22

Ans.

$$(-1) \times (-22) = 22$$

(b) 37

Ans.

$$(-1) \times 37 = (-37)$$

(c) 0

Ans.

$$(-1) \times 0 = 0$$

4. Starting from $(-1) \times 5$, write various products showing some pattern to show $(-1) \times (-1) = 1$.

Ans.

$$(-1) \times 5 = -5$$

$$(-1) \times 4 = -4$$

$$(-1) \times 3 = -3$$

$$(-1) \times 2 = -2$$

$$(-1) \times 1 = -1$$

$$(-1) \times 0 = 0$$

$$(-1) \times (-1) = 1$$

EXERCISE-1.3

NCERT SOLUTION

1. Evaluate each of the following:

(a) $(-30) \div 10$

Ans.

$$\frac{-30}{10} = (-3)$$

(b) $50 \div (-5)$

Ans.

$$\frac{50}{-5} = (-10)$$

(c) $(-36) \div (-9)$

Ans.

$$\frac{-36}{-9} = 4$$

(d) $(-49) \div (49)$

Ans.

$$\frac{-49}{49} = (-1)$$

(e) $13 \div [(-2) + 1]$

Ans.

$$\begin{aligned} &13 \div (-1) \\ \frac{13}{-1} &= (-13) \end{aligned}$$

(f) $0 \div (-12)$

Ans.

$$\frac{0}{-12} = 0$$

(g) $(-31) \div [(-30) + (-1)]$

Ans.

$$(-31) \div (-30 - 1)$$

$$(-31) \div (-31)$$

$$\frac{-31}{-31} = 1$$

(h) $[(-36) \div 12] \div 3$

Ans.

$$\left[\frac{-36}{12} \right] \div 3$$

$$(-3) \div 3$$

$$= -1$$

(i) $[(-6) + 5] \div [(-2) + 1]$

Ans.

$$[(-6) + 5] \div [(-2) + 1]$$

$$(-1) \div (-1)$$

$$\frac{-1}{-1} = 1$$

2. Verify that $a \div (b + c) \neq (a \div b) + (a \div c)$ for each of the following values of a, b and c.

(a) $a = 12, b = -4, c = 2$

Ans.

Given $= a \div (b + c) \neq (a \div b) + (a \div c)$

Putting the value of $a = 12, b = -4$ and $c = 2$ in the given equation

Putting the given value in L.H.S $= 12 \div (-4 + 2) = 12 \div (-2) = -6$

Putting the given value in R.H.S =

$$[12 \div (-4)] + [12 \div 2] = (-3) + 6 = 3$$

L.H.S \neq R.H.S. Hence verified.

(b) $a = (-10)$, $b = 1$, $c = 1$

Ans.

Given $= a \div (b + c) \neq (a \div b) + (a \div c)$

Putting the value of $a = -10$, $b = 1$ and $c = 1$ in the given equation

Putting the given value in L.H.S $= -10 \div (1 + 1) = -10 \div 2 = -5$

Putting the given value in R.H.S $= (-10) \div 1 + (-10) \div 1 =$
 $-10 - 10 = -20$

3. Fill in the blanks:

(a) $369 \div \underline{\hspace{2cm}} = 369$

Ans.

$369 \div \underline{1} = 369$

(b) $(-75) \div \underline{\hspace{2cm}} = -1$

Ans.

$(-75) \div \underline{(-75)} = -1$

(c) $(-206) \div \underline{\hspace{2cm}} = 1$

Ans.

$(-206) \div \underline{(-206)} = 1$

(d) $-87 \div \underline{\hspace{2cm}} = 87$

Ans.

$-87 \div \underline{(-1)} = 87$

(e) $\underline{\hspace{2cm}} \div 1 = -87$

Ans.

$\underline{-87} \div 1 = -87$

(f) _____ $\div 48 = -1$

Ans.

$-48 \div 48 = -1$

(g) $20 \div$ _____ $= -2$

Ans.

$20 \div$ -10 $= -2$

(h) _____ $\div 4 = -3$

Ans.

$-12 \div 4 = -3$

4. Write five pairs of integers (a, b) such that $a \div b = -3$. One such pair is (6, -2) because $6 \div (-2) = (-3)$.

Ans.

$9 \div (-3) = (-3)$

$(-6) \div 2 = (-3)$

$21 \div (-7) = (-3)$

$(-21) \div 7 = (-3)$

$15 \div (-5) = (-3)$

5. The temperature at 12 noon was 10°C above zero. If it decreases at the rate of 2°C per hour until midnight, at what time would the temperature be 8°C below zero? What would be the temperature at mid-night?

Ans.

Temperature at 12 noon = 10°C above zero

Temperature decreases by 2°C in 1 hour

Temperature decreases by 1°C in $\frac{1}{2}$ hours

Temperature decreases to $18^{\circ}\text{C} = \frac{1}{2} \times 18 = 9$ hours

Time at which temperature will be 8°C below zero = 12noon + 9hours = 21 hours or 9 pm

Temperature at midnight = $10^{\circ}\text{C} + 12 \times (-2)^{\circ}\text{C} = 10 - 24 = -14^{\circ}\text{C}$

6. In a class test (+3) marks are given for every correct answer and (-2) marks are given for every incorrect answer and no marks for not attempting any question.

(i) Radhika scored 20 marks. If she has got 12 correct answers, how many questions has she attempted incorrectly?

Ans.

Marks for every correct answer = 3

Marks for every incorrect answer = (-2)

Radhika score 20marks

Marks for 12 correct answer = $12 \times 3 = 36$

\therefore Marks obtained for incorrect answers = $20 - 36 = -16$

Number of incorrect Questions = $\frac{-16}{-2} = 8$

Therefore, Radhika has attempted 8 incorrect questions.

(ii) Mohini scores -5 marks in this test, though she has got 7 correct answers. How many questions has she attempted incorrectly?

Ans.

Marks for every correct answer = 3

Marks for every incorrect answer = (-2)

Mohini score - 5 marks

Marks for 7 correct answer = $7 \times 3 = 21$ marks

\therefore Marks obtained for incorrect answers = $-5 - 21 = -26$

Number of incorrect Questions = $\frac{-26}{-2} = 13$

Therefore, mohini has attempted 13 incorrect questions.

7. An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10m above the ground level, how long it take to reach - 350 m.

Ans.

Starting point of mine shaft is 10m above the ground but it move in opposite direction to reach – 350 m below the ground.

Total distance covered by mine shaft = $10\text{m} - (-350) = 360\text{m}$

Time taken to cover 6m = 1 minute

Time taken to cover 6m = $\frac{1}{6}$ minutes

\therefore Time taken to cover 360 m = $\frac{1}{6} \times 360 = 60$ minutes or 1 hour

Thus, in 1 hour mine shaft reaches – 350 m below the ground.

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